

AMENDMENTS TO THE CLAIMS

The listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1-24. (Canceled).

25. (Withdrawn) A device for sealing a puncture extending through tissue proximal to an interior vessel surface, the device comprising: a nut coupled to a bolt, wherein the device is configured to be releasably engaged to the interior vessel surface.

26. (Withdrawn) The device of claim 25, wherein the bolt is configured to substantially conform to the interior vessel surface.

27. (Withdrawn) The device of claim 25, wherein the nut is configured to be releasably coupled to the bolt.

28. (Withdrawn) The device of claim 25, wherein the nut comprises a first self-expanding disk and the bolt comprises a second self-expanding disk.

29. (Withdrawn) The device of claim 25, wherein the device is biodegradable.

30. (Currently Amended) A device for sealing a subcutaneous puncture site of a extending through tissue proximal to an interior vessel wherein the subcutaneous puncture site is accessed through a puncture tract that extends through subcutaneous tissue to the subcutaneous puncture site surface, the device comprising:

a first disk comprised of having a self-expanding first bare wire frame that forms a plurality of petals, the plurality of petals having a first end and a second end, each petal of the plurality of petals is joined to the remaining petals of the plurality of petals at a joint;

a membrane made of material that is flexible and fluid impermeable, and
a self-expanding wire frame which supports the membrane, the membrane and
wire frame being foldable into

a first configuration wherein the disk is folded to permit introduction of
the folded disk through the puncture tract of the tissue to the subcutaneous
puncture site, and then through the subcutaneous puncture site into the interior of
the vessel, and

the membrane and wire frame then being self-expanding toward a second
configuration once inside the vessel in order to unfold so that the membrane and
wire frame will position the disk against the interior wall of the subcutaneous
puncture site to facilitate sealing of the puncture site; and

a second disk moveably connected to the wire frame of the first disk prior to and
throughout deployment so as to advance together as an integral unit through the puncture tract,
the second disk being configured for placement within the puncture tract to securely engage the
tissue of the puncture tract, and when secured within the puncture tract the second disk exerting a
lateral force on the surrounding tissue of the puncture tract and exerting a longitudinal force on
the first disk when it is unfolded in order to urge the first disk against the puncture site to
facilitate sealing the puncture site, the second disk comprising

a self-expanding wire frame being foldable into

a first configuration wherein the second disk is folded to permit
introduction of the folded second disk and the folded first disk through the
puncture tract of the tissue to the subcutaneous puncture site, and then
introduction of the first disk through the subcutaneous puncture site into the
interior of the vessel, and

the wire frame of the second disk then being self-expanding toward a
second configuration once inside the puncture tract in a second configuration so

that the wire frame of the second disk will exert a lateral force on the surrounding tissue of the puncture tract while also exerting a longitudinal force against the first disk in order to urge the first disk against the interior wall of the subcutaneous puncture site to facilitate sealing of the puncture site, and

the first disk and the second disk being separated by a first distance in the first configuration and by a second distance in the second configuration, the first distance being larger than the second distance,

~~a proximal element having a second bare wire frame coupled to the first frame, wherein at least part of the device is biodegradable, the first disk being configured to be releasably coupled to the proximal element in a delivery configuration and translating along a portion of the proximal element to allow altering of a distance between the first disk and the proximal element;~~

~~the first disk including a first threaded member and the proximal element including a second threaded member, the first and second threaded members being configured for releasably coupling the first disk to the proximal element in the delivery configuration and translating the first disk along a portion of the proximal element to allow altering of a distance between the first disk and the proximal element;~~

~~the first threaded member including a keyway and the second threaded member including at least one slot, the keyway being adapted to permit positioning of the first disk relative to the interior vessel surface and for holding the first disk in a stationary position relative to the interior vessel surface, and the at least one slot being adapted for driving the second threaded member relative to the first threaded member while the first disk is held in the stationary position relative to the interior vessel; and~~

~~the first disk having a retracted delivery configuration adapted for delivery to the puncture and an expanded deployed configuration in which the first disk is adapted to engage with and substantially conform to the interior vessel surface, and the proximal element being configured to engage the tissue proximal to the interior vessel surface;~~

~~wherein the first disk and the proximal element are biased toward one another such that first disk is held in sealing engagement against the interior vessel surface by the proximal element being engaged with the tissue proximal to the interior vessel surface.~~

32. (Previously Presented) The device of claim 30, wherein the device is configured to be releasably engaged to the interior vessel surface.

33. (Currently Amended) The device of claim 30, wherein the first disk is configured to be releasably moveably coupled to the proximal element second disk.

34. (Currently Amended) The device of claim 30, wherein the proximal element comprises a second disk further comprising a stop feature to prevent accidental disengagement of the first and second disk.

35. (Currently Amended) The device of claim 34, wherein the first disk is attached to a nut and the second disk is attached to a bolt, the nut configured to be releasably moveably coupled to the bolt.

36. (Currently Amended) The device of claim 30, wherein the second disk is moveably coupled to the first disk proximal element comprises a spring.

37. (Currently Amended) The device of claim 30, wherein one or both of the first disk and the proximal element second disk comprises barbs, hooks, sharp edges, or roughened surfaces.

38. (Currently Amended) The device of claim 30, further comprising a minimally invasive delivery element configured to deliver the first disk and the proximal element second disk.

39. (Previously Presented) The device of claim 30, further comprising at least one delivery element constrained to translate a maximum distal depth.

40. (Currently Amended) A device for sealing a subcutaneous puncture site of a extending through tissue proximal to an interior vessel wherein the subcutaneous puncture site is accessed through a puncture tract that extends through subcutaneous tissue to the subcutaneous puncture site surface, the device comprising:

a first disk comprised of having

a membrane made of material that is flexible and fluid impermeable, and

a self-expanding wire frame which supports the membrane, without coatings or membranes, that forms a plurality of petals, each petal of the plurality of petals is joined to the remaining petals of the plurality of petals at a joint, each petal of the plurality of petals having a first end, a second end disposed adjacent to the first end, and an intermediate portion extending from the first end towards the second end; , the membrane and wire frame being foldable into

a first configuration wherein the disk is folded to permit introduction of the folded disk through the puncture tract of the tissue to the subcutaneous puncture site, and then through the subcutaneous puncture site into the interior of the vessel, and

the membrane and wire frame then being self-expanding once inside the vessel in order to unfold so that the membrane and wire frame will position the disk against the interior wall of the subcutaneous puncture site to facilitate sealing of the puncture site; and

a second disk moveably connected to the wire frame of the first disk prior to and throughout deployment so as to advance together as an integral unit through the puncture tract and to facilitate repositioning of the device at the subcutaneous puncture site, the second disk being configured for placement within the puncture tract to securely engage the tissue of the puncture tract, and when secured within the puncture tract the second disk exerting a lateral force on the surrounding tissue of the puncture tract and exerting a longitudinal force on the first disk when it is unfolded in order to urge the first disk against the puncture site to facilitate sealing the puncture site, the second disk comprising

a self-expanding wire frame being foldable into

a first configuration wherein the second disk is folded to permit introduction of the folded second disk and the folded first disk through the puncture tract of the tissue to the subcutaneous puncture site, and then

introduction of the first disk through the subcutaneous puncture site into the interior of the vessel, and

the wire frame of the second disk then being self-expanding once inside the puncture tract so that the wire frame of the second disk will exert a lateral force on the surrounding tissue of the puncture tract while also exerting a longitudinal force against the first disk in order to urge the first disk against the interior wall of the subcutaneous puncture site to facilitate sealing of the puncture site,

a proximal element releasably coupled to the first disk, the first disk and the proximal element being connected in a delivery configuration and translating along a portion of the proximal element to allow altering of a distance between the first disk and the proximal element;

the first disk including a threaded nut and the proximal element including a threaded bolt, the threaded nut and the threaded bolt being configured for releasably coupling the first disk to the proximal element, the threaded bolt being configured to be driven relative to the threaded nut;

the first disk having a retracted delivery configuration adapted for delivery to the puncture and an expanded deployed configuration in which the first disk is adapted to engage with and substantially conform to the interior vessel surface, and the proximal element having a retracted delivery configuration for delivery to the tissue proximal to the puncture and a retracted deployed configuration configured to engage the tissue proximal to the interior vessel surface;

a minimally invasive delivery apparatus comprising first and second delivery elements configured to at least selectively limit distal translation of the first delivery element with respect to the second delivery element so that only the first disk is extended out of the minimally invasive delivery apparatus; and

the minimally invasive delivery apparatus further comprising third and fourth delivery elements;

the third delivery element being configured to engage with a keyway on the threaded nut for positioning the first disk relative to the interior vessel surface and for holding the first disk in a stationary position;

the fourth delivery element being configured to engage with at least one slot on the threaded bolt for driving the threaded bolt relative to the threaded nut to hold the first disk in sealing engagement against the interior vessel surface and to position the proximal element in engagement with the tissue proximal to the interior vessel surface; and

~~the third and fourth delivery elements being further configured to permit the first disk to be released from engagement with the interior vessel surface, thereby permitting the device to be repositioned.~~